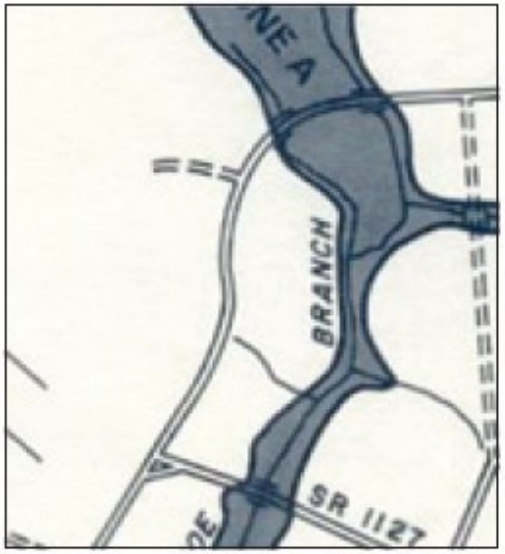
PLANNING COMMUNITY OF PRACTICE (CoP) CONFERENCE 2006
COLLABORATION FOR INTEGRATED WATER RESOURCES MANAGEMENT
9 - 11 MAY, SAN FRANCISCO, CALIFORNIA

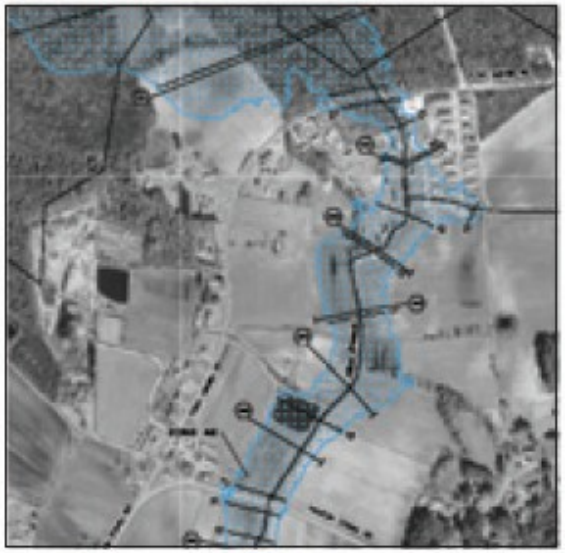
Collaborative Approach to FEMA Map Modernization

Kate White, PhD, PE (CEERD-RN)
Jerry Webb, PE, DWRE (CECW-EC)
Mark Flick (CEERD-RT)
John Hunter, PE (CELRN-EC-H)
Cam Ackerman, PE (CEIWR-HEC-WR)
Bruce Ebersole, PE (CEERD-HF)
Tammy Conforti, PE (CEIWR-GR)

FEMA Map Modernization Program



Paper flood map section

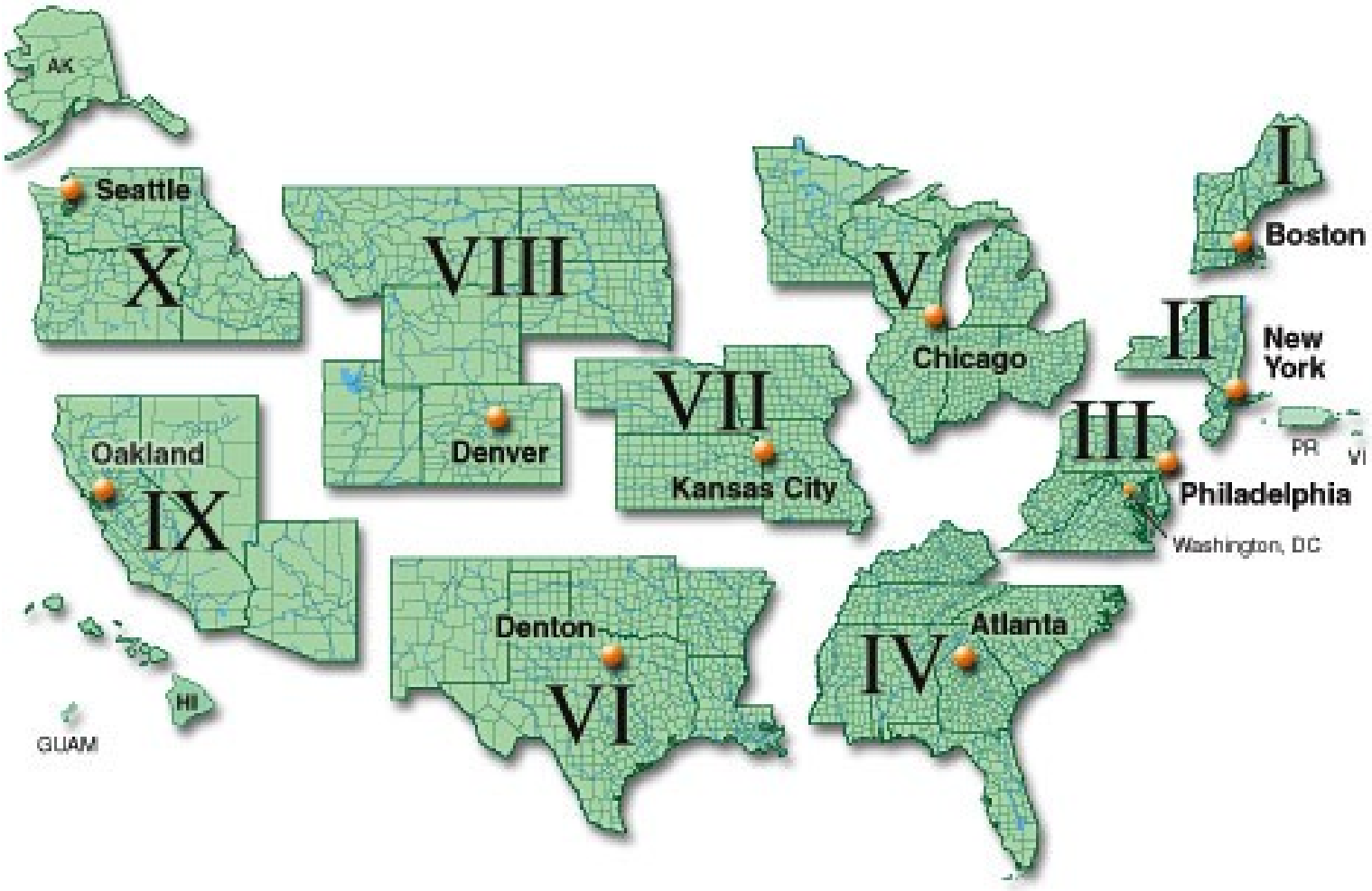


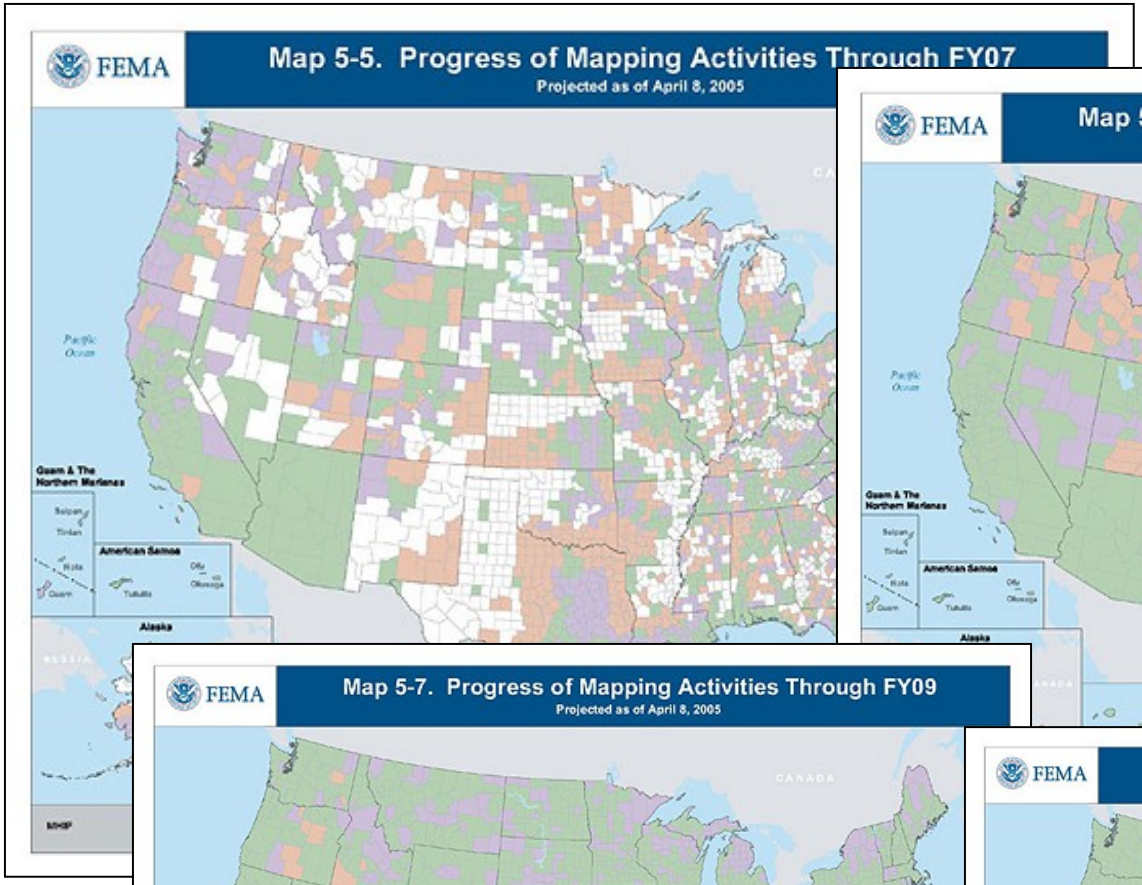
Digital flood map section

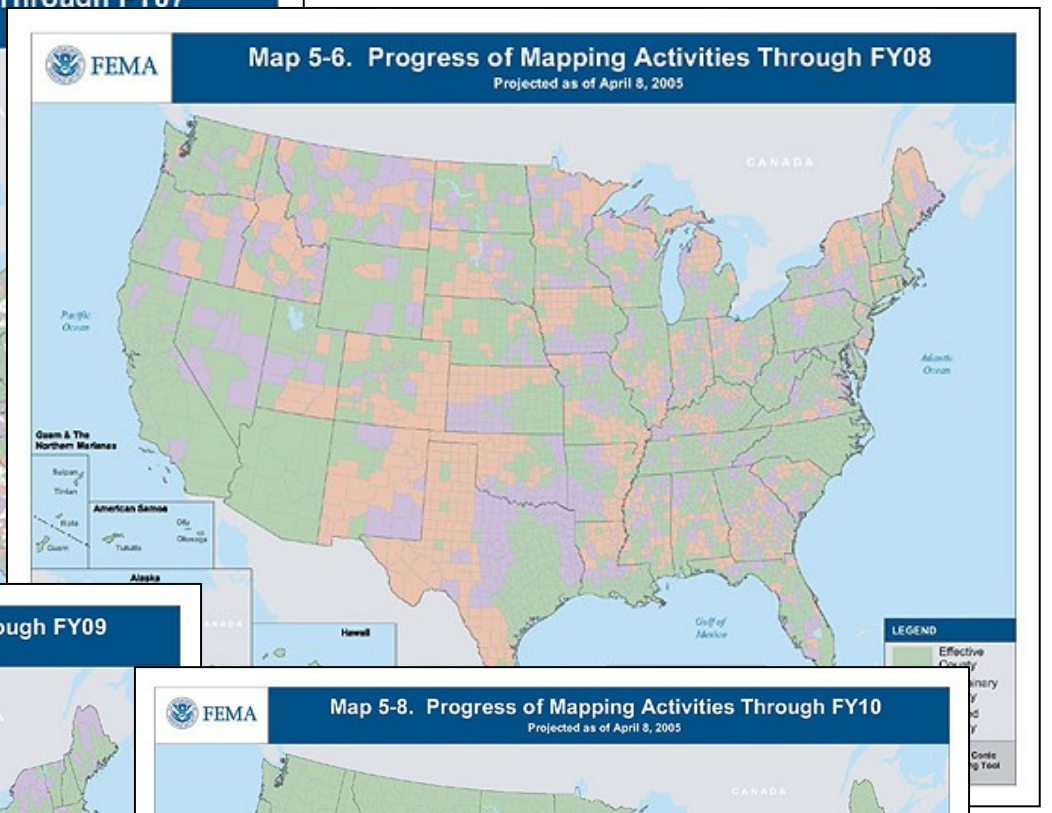
FEMA Map Modernization Program

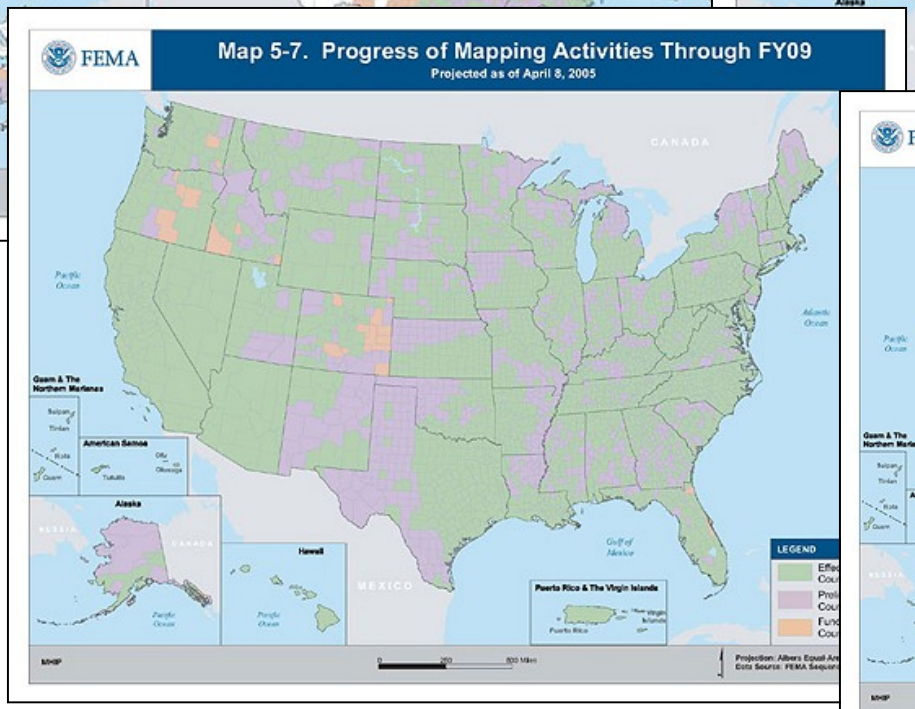
- **>90K Flood Insurance Rate Map panels**
- **~70% FIRM > 10 years old by 2005**
- **GAO recommended FEMA align funding to flood risk**
- **MMP details in Multi-year flood Hazard Identification Plan (MHIP) - living document**
  - **Studies for > 1/3 of counties started by FY05**
  - **~ 40% of population will have digital maps by FY05**
  - **MHIP FY02-05 →08 with completion by FY10**
  - **FY05-09 sequence for DFIRM production**
  - **Dynamic scheduling for projects scheduled through FY08 (completion through FY10)**
  - **Risk-based method to establish appropriate level of detail, accuracy, and analysis for reliable maps**

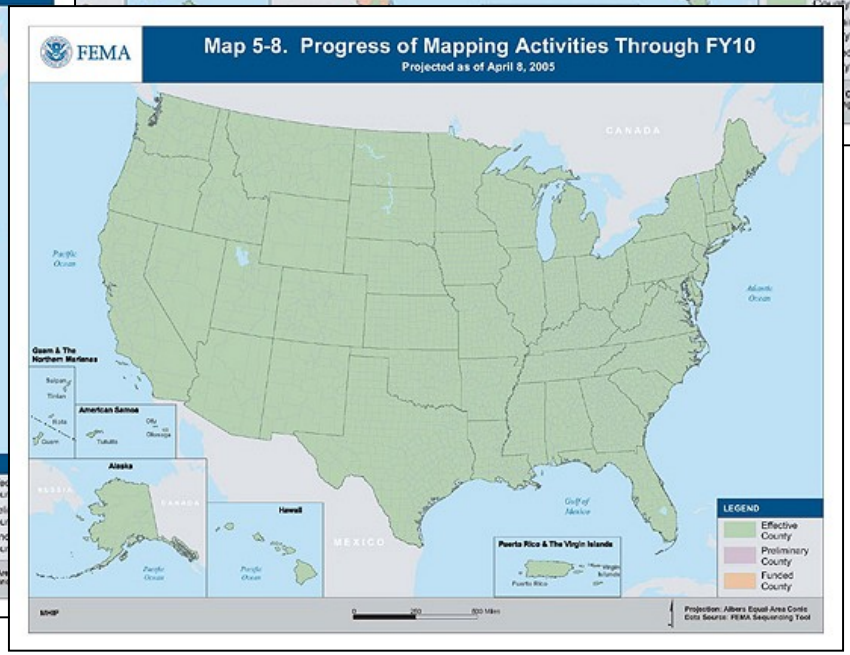
FEMA Regions




FEMA
Map 5-5. Progress of Mapping Activities Through FY07
Projected as of April 8, 2005
Guam & The Northern Marianas
American Samoa
Alaska


FEMA
Map 5-6. Progress of Mapping Activities Through FY08
Projected as of April 8, 2005
CANADA
Pacific Ocean
Atlantic Ocean
Guam & The Northern Marianas
American Samoa
Alaska
Hawaii
Gulf of Mexico
LEGEND


FEMA
Map 5-7. Progress of Mapping Activities Through FY09
Projected as of April 8, 2005
CANADA
Pacific Ocean
Atlantic Ocean
Guam & The Northern Marianas
American Samoa
Alaska
Hawaii
Puerto Rico & The Virgin Islands
Gulf of Mexico
MEXICO
LEGEND


FEMA
Map 5-8. Progress of Mapping Activities Through FY10
Projected as of April 8, 2005
CANADA
Pacific Ocean
Atlantic Ocean
Guam & The Northern Marianas
American Samoa
Alaska
Hawaii
Puerto Rico & The Virgin Islands
Gulf of Mexico
MEXICO
LEGEND
Effective County
Preliminary County
Funded County

Current MHIP

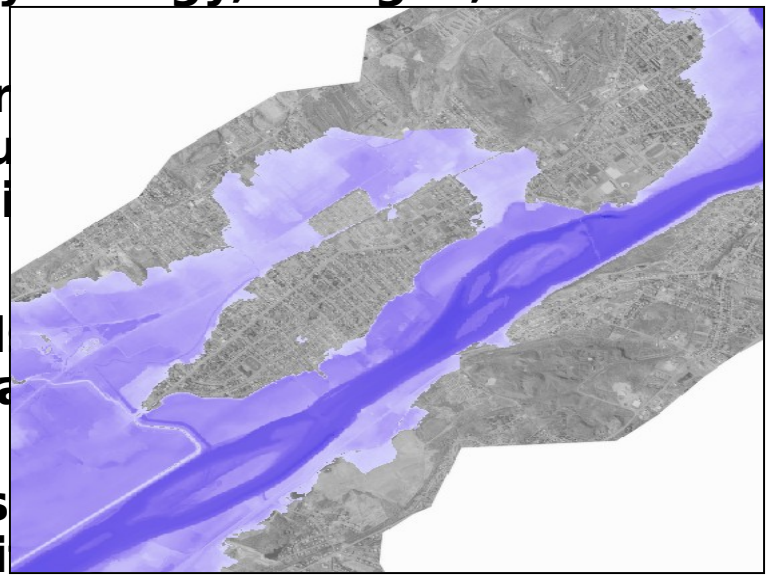
Table ES-2. Map Production Funding Distribution by Region, FY04-FY08

Region	FY04 Funding[1]	FY05 Funding[1]	FY06 Funding[2]	FY07 Funding[2]	FY08 Funding[2]
1	$4,206,000	$5,315,000	$5,661,000	$5,827,500	$5,827,500
2	$9,420,000	$11,475,000	$12,087,000	$12,442,500	$12,442,500
3	$9,752,000	$12,047,000	$12,852,000	$13,230,000	$13,230,000
4	$35,722,000	$35,725,000	$38,097,000	$39,217,500	$39,217,500
5	$12,798,000	$17,222,000	$18,207,000	$18,742,500	$18,742,500
6	$17,583,000	$23,159,000	$26,775,000	$27,562,500	$27,562,500
7	$7,411,000	$10,115,000	$10,710,000	$11,025,000	$11,025,000
8	$5,432,000	$6,908,000	$7,191,000	$7,402,500	$7,402,500
9	$11,462,000	$13,517,000	$15,453,000	$15,907,500	$15,907,500
10	$4,572,000	$5,849,000	$5,967,000	$6,142,500	$6,142,500
Total	**$118,358,000**	**$141,332,000**	**$153,000,000**	**$157,500,000**	**$157,500,000**

Notes: 1 – Actual
2 – Proposed

Corps Support to FEMA

- **The US Army Corps of Engineers has played a vital role in the development of Flood Insurance Studies for the FEMA since the 1970's**
- **Local Corps Districts**
  - **Local knowledge of rivers, coastal areas, flooding, flood damage reduction projects, development patterns, regulatory permits, updated hydrology, bridges,**
  - **Leveraging updates with other floodplain management ou (e.g. cumulative i**
- **National Corps Districts**
  - **Experience with latest method use β version of HEC a models first**
  - **One Door to the Corps enables flexible and time-sensi scheduling**



Corps Support to FEMA

- **Corps Centers**
  - **Hydrologic Engineering Center**
    - **Develops the HEC-RAS, GeoHEC-RAS, HMS, GeoHMS, and flood frequency analysis models used by Districts and others**
  - **Remote Sensing/GIS Center of Expertise**
    - **Develops local, regional, and national geospatial databases and supports Corps AIS for Emergency Management, O&M, and regulatory (in process)**
- **Corps Laboratories**
  - **Coastal and Hydraulics Laboratory**
    - **Develops the coastal models for local and regional wave and surge modeling (STWAVE, ADCIRC, WISWAVE)**
    - **Has access to LIDAR bathymetry, soundings, and other data collected for coastal studies**
  - **Cold Regions Research and Engineering Laboratory**
    - **Supports HEC in snowmelt and ice jam code for models**
    - **Develops geospatially enabled local and regional hydrology**

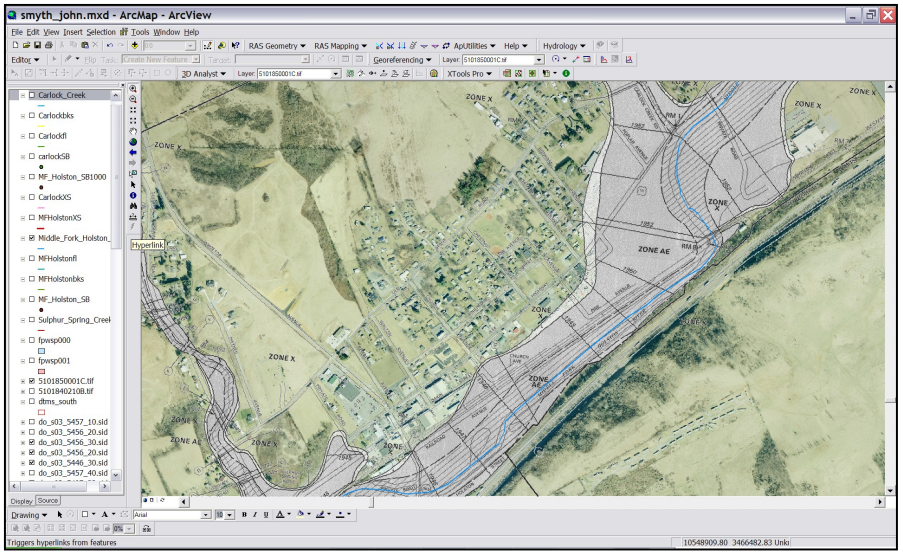
USACE National FEMA MapMod PDT

- **Established September 2004 to facilitate Corps projects related to MapMod**
  - **provide one door to the Corps for FEMA Regions and partners undertaking MapMod studies**
  - **coordinate interagency agreements**
  - **support management via P2**
  - **develop and support virtual teams**
  - **assist with hydrologic, hydraulic, and GIS technical issues**
  - **organize training opportunities for the development of MapMod products**
- **Leverages MapMod studies with capacity building activities to develop and maintain future Corps capabilities in the core competence areas of hydrology, hydraulics, and coastal engineering**

USACE National FEMA MapMod PDT

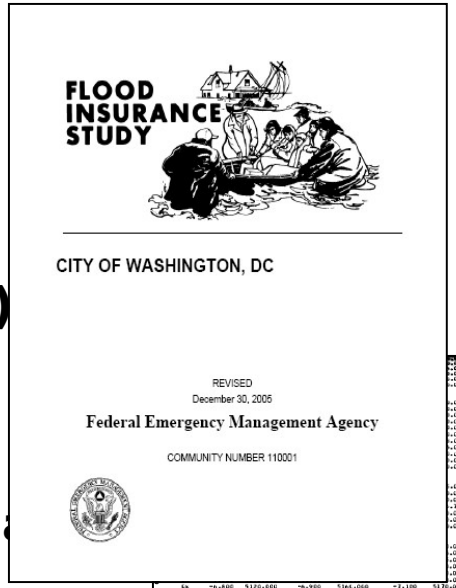
- **Steering Committee:**

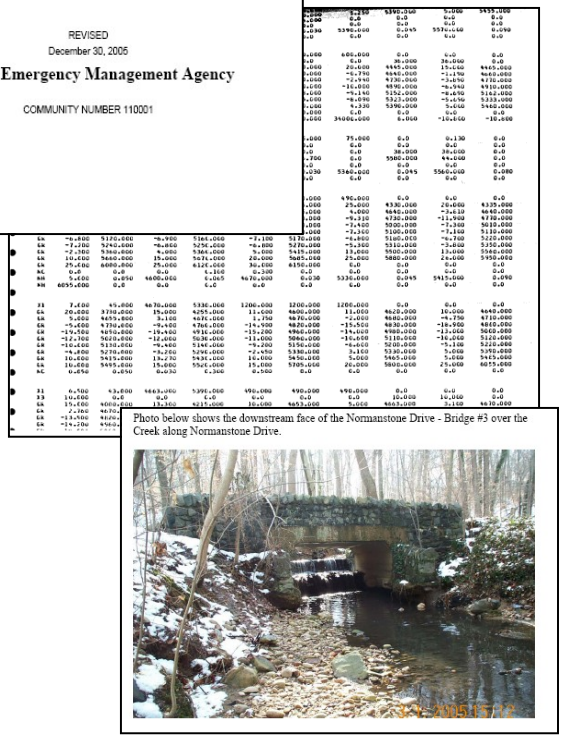
Kathleen D. White, PhD, PE (CEERD-RN)	PDT Lead
Jerry W. Webb, PE, DWRE (CECW-EW)	PDT Advisor
Mark Flick (CELRN-EC-H)	GIS Technical Lead
John W. Hunter, PE (CELRN-EC-H)	H&H Technical Lead
Cameron T. Ackerman, PE (CEIWR-HEC-WR)	H&H Modeling and Levee Issues Lead
Bruce Ebersole, PE (CEERD-HF)	Coastal Technical Lead
Tammy L. Conforti, PE (CEIWR-GR)	Planning/Program Management Lead



USACE National FEMA MapMod PDT

- **Formed initially to work with FEMA Region 3**
- **One Door to the Corps**
- **Virtual Teaming:**
  - **Washington DC ($200K) (complete)**
    - **4 Districts (NAB, NAP, LRH, LRN)**
    - **2 labs (ERDC CHL and CRREL)**
    - **Developed WBS**
    - **Created bridge data collection forma**
  - **Ongoing:**
    - **Coastal surge analysis for Chesapeake Bay ($150K)**
      - **2 Districts (NAB, NAO)**
      - **1 lab (ERDC CHL)**
    - **Chesapeake Bay Interagency Workshop on Innovative Applications of New Floodplain Management Products ($50K)**
      - **3 Districts (NAB, NAO, NAP,)**
      - **2 labs (ERDC CHL and CRREL)**



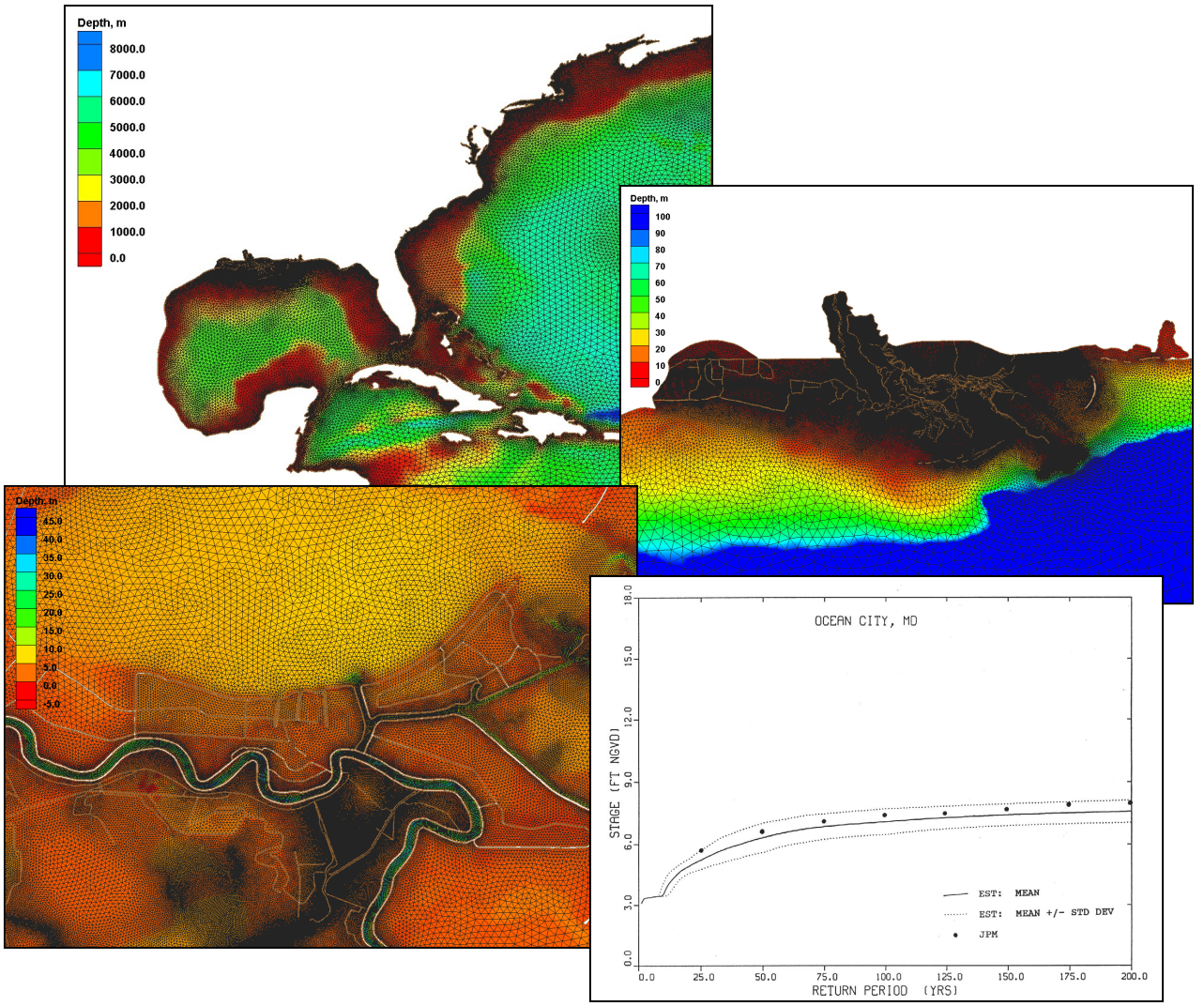


USACE National FEMA MapMod PDT

- **Ongoing:**
  - **Maryland Department of the Environment ($1M)**
    - **8 Districts (3 Divisions – NA LRD, MVD)**
    - **2 labs (ERDC CHL and CRREL**
  - **FEMA Region 3: Five Counties DFIRM ($600K)**
    - **partially distributed**
    - **1 lab (ERDC CHL)**
- **Negotiating**
  - **DC Emergency Management Agency ($60K) leverage floodway update**
    - **In final negotiations**
  - **Maryland Department of the Environment ($1M)**
    - **Leverages surge analysis**
    - **Currently negotiating**

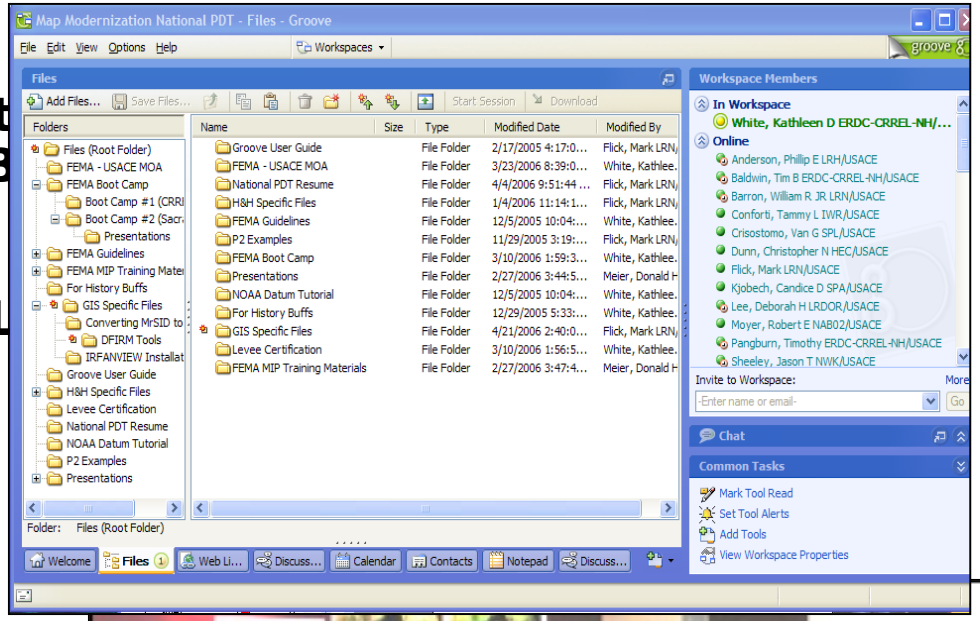
Coastal Capabilities

- **Louisiana Coastal**
  - **FEMA Region VI**
  - **completed**
- **Chesapeake Bay**
  - **FEMA Region III**
  - **ongoing**
- **Texas Coastal**
  - **FEMA Region VI**
  - **ongoing**



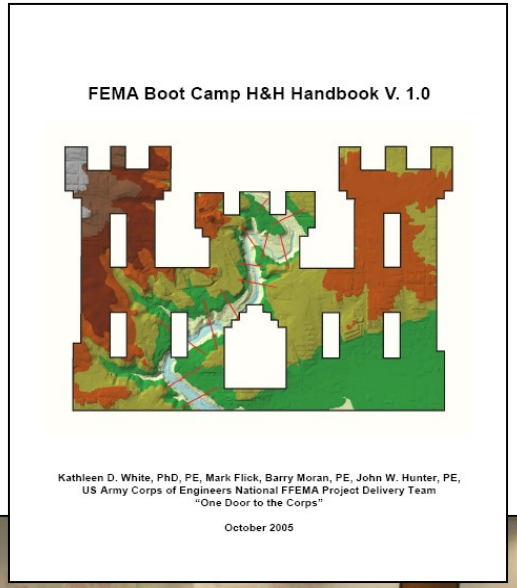
National FEMA MapMod PDT Outcomes

- **Networking:**
  - **National PDT spreadsheet (NAB, NAE, NAO, NAP, LRB LRE, LRH, LRN, LRP, MVN, MVP, MVR, MVS, NWK, NWP, NWS, SAM, SPA, SPL SPN, ERDC, HEC)**
  - **Staff experience in**
    - **H&H, Coastal, GIS, HEC support, and PM aspects of MapMod studies**
    - **Conversion from WSP2 and other to HEC-RAS**
  - **Groove site supports information exchange and knowledge retention**
  - **Group meeting at 2005 Tri-Service Infrastructure Conference (St. Louis)**



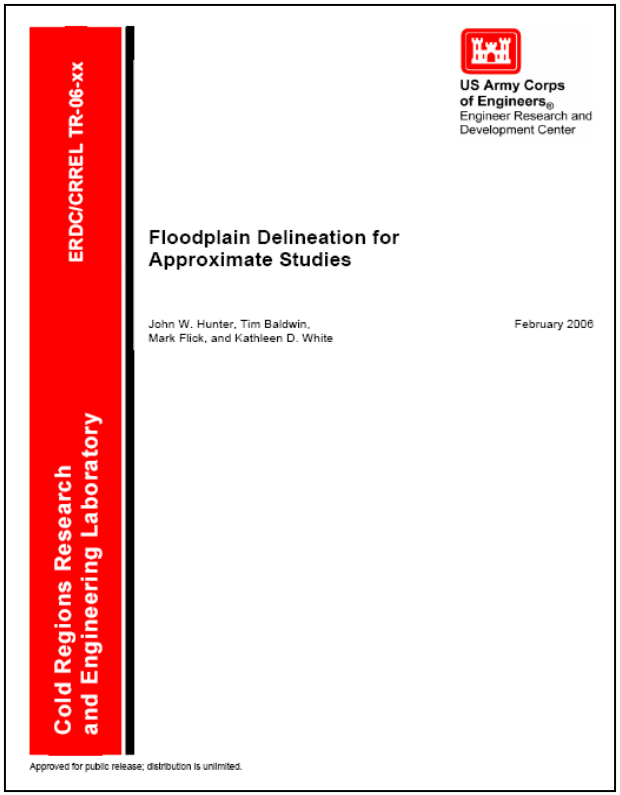
National FEMA MapMod PDT Outcomes

- **Capacity Building**
  - **DFIRM Tools Training, 3-day virtual training session for Corps, FEMA, USGS, Michael Baker, contractors**
  - **FEMA Boot Camp #1, September 2005**
    - **NAB, NAP, LRB, LRE, LRH, LRN, MVP, MVR**
    - **and ERDC**
  - **FEMA Boot Camp #2, February 2006**
    - **LRN, MVP, SPA, SPK, SPL, SPN, SPD**
    - **CA DWR, FEMA Region 10**
    - **Added Planning and PM focus**


FEMA Boot Camp H&H Handbook V. 1.0
Kathleen D. White, PhD, PE, Mark Flick, Barry Moran, PE, John W. Hunter, PE,
US Army Corps of Engineers National FFEMA Project Delivery Team
"One Door to the Corps"
October 2005

National FEMA MapMod PDT FY06

- **Capacity Building:**
  - **Method for floodplain delineation for approximate areas**
  - **Additional DFIRM tools training**
  - **Tech Note for DFIRM generation**
- **Shadow Opportunities**
  - **Shadow PMs as they carry out duties related to being the technical lead for H&H, GIS, and project planning on MapMod projects**
    - **Copied on all emails**
    - **Included in all teleconferences**
    - **Face-to-face meeting to observe PDT-customer interactions will include travel costs**
    - **Provides succession planning for future MapMod PMs**
    - **One selected in April (H&H), another two planned for June-July 06 (GIS and Planning)**


ERDC/CRREL TR-06-xx
Cold Regions Research and Engineering Laboratory
US Army Corps of Engineers®
Engineer Research and Development Center
Floodplain Delineation for Approximate Studies
John W. Hunter, Tim Baldwin, Mark Flick, and Kathleen D. White
February 2006
Approved for public release; distribution is unlimited.

Lessons Learned

- P2 structure for project management not necessarily optimal for financial management
- Bridges, bridges, bridges!
- Data, data, data!
- National PDT is a great example of 2012 in action:
  - Grassroots efforts lead to interested, energetic participants
  - Cross-District and cross-Division partnering enhanced
- Other efforts aligned with regional business center approach
- Levee certification will require consistent approach
  - Training provided at Boot Camp
  - PDT will work with Levee Safety Officer
- Thanks to:
  - GIS Lead: Mark Flick, LRN
  - Hydraulics Lead: John Hunter, LRN
  - Jerry Webb: HQUSACE support and encouragement